



# AiSHi

THINK AHEAD.

THE AIHUA GROUP COMPANY PROFILE 2022

# AIHUA VISION

## BUILDING A SUSTAINBLE ENTERPRISE FOR FUTURE GENERATIONS

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The Aihua Group, established in 1985, is a technology enterprise group focused on the design, development, manufacturing, and sales of aluminum electrolytic and film capacitors as well as the manufacturing of aluminum foil and machines. The Aihua Group's manufacturing facilities are located in Sichuan, Jiangsu, Hunan and Xingjiang and employs over 4,600 people.

37  
years  
since 1985

# COMPANY FACTS

## THE COMPANY

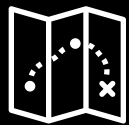


**Yiyang City  
Hunan Province**

Headquartered in Aihua Industrial  
Park Yiyang City, Hunan Province  
China

# 1985

Established in 1985



# 7

**Factory  
Locations**

Locations in Yiyang City, Nantong,  
Suzhou, Mianyang, Xinjiang

## OUR PEOPLE



Chairman (Founder) - Ai Li Hua  
Vice Chairman – Wang Anan  
President / CEO – Ivy Ai



**4600+** employees **2%** turnover rate

Aihua employees approximately 4,600 people across the world.

## OUR PRODUCTS

**Aluminum Electrolytic Capacitors**

# 15,000,000,000

Pieces produced annually

# AI

Aihua fully operates and owns etching and  
forming foil technology and factories

*DEFINITIONS:*

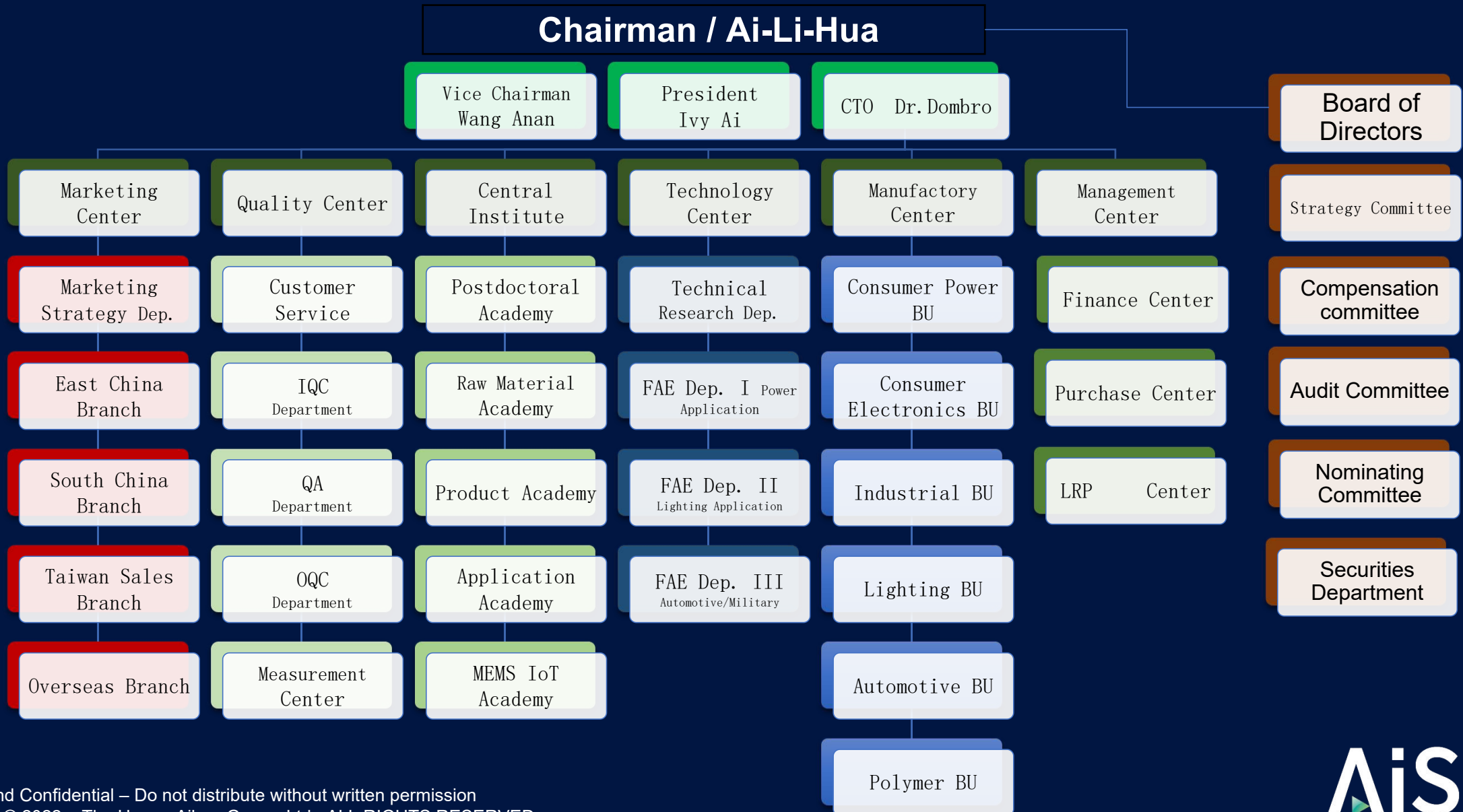
*AiSHi – The brand name for our capacitors*

*Aihua Group – The Holding company that AiSHi is under*

**HQ Production Area**

150,000m<sup>2</sup>

# ORGANIZATION



# OUR HISTORY

•Established in Hunan, China

•Established “Mianyang Zijiang Electronic Elements Co.,Ltd”

•Obtained ISO9001 certification

•Established “Sichuan Aihua Electronics Co.,Ltd”

•Obtained ISO14001 certification

•Established “Sichuan Aihua Electrode Foil Co.,Ltd”,

•Acquired advanced Japanese Technology company

•Obtained OHSAS 18001 certification

•Established “Jiangsu Lifu Electrode Foil Co.,Ltd” ,

•“AISHI” evaluated as Hunan Province’s top brand.

•Obtained IEC QC080000 certification

•Named “Hunan Aihua Group Co.,Ltd”

•Established Aihua Industrial Park

•Established Yiyang Aihua Fuxian Electronic Co., LTD

•ISO/TS 16949 certified by DNV

•Joint Venture with Japan Kawatake Electronics Co., LTD

•Shanghai Stock Exchange Number:603989

•Established “Xinjiang Rongze Electrode Foil Co.,Ltd” ,

•Established “MLPC Factory”

•IATF 16949 certified by DNV

•Establish Metalized Film Cap Factory

•ISO 17025 & CNAS Certified Quality Lab

•Smart Factory established 36,000m<sup>2</sup>

1985

1996

2002

2003

2005

2010

2013

2015

2016

2018

2021

# PRODUCT TYPES

## ALUMINUM ELECTROLYTIC

### RADIAL LEADED



Ranges from low to high capacitance and voltage. Can be found in lighting and consumer electronics applications among others.

#### CHARACTERISTICS

Size:  $\Phi 4 - \Phi 22$   
Voltage: 6.3V – 600V  
Capacitance: 0.1 $\mu$ F – 22,000 $\mu$ F  
ESR: as low as 10m $\Omega$

Life: up to 20,000 hours (105°C)  
up to 5,000 hours (130°C)

### SURFACE MOUNT



Ranges from low to high capacitance and voltage. Can be found in lighting and consumer electronics applications among others.

#### CHARACTERISTICS

Size:  $\Phi 4 - \Phi 18$   
Voltage: 6.3V – 450V  
Capacitance: 2.2 $\mu$ F – 18,000 $\mu$ F  
ESR: as low as 10m $\Omega$

Life: up to 20,000 hours (105°C)  
up to 5,000 hours (130°C)

### SNAP IN



The Snap In capacitors are relatively large and possess high capacitance and voltage. Applications are primarily for energy and power.

#### CHARACTERISTICS

Size:  $\Phi 22 - \Phi 40$   
Voltage: 10V – 600V  
Capacitance: 39 $\mu$ F – 56,000 $\mu$ F

Life: up to 10,000 hours (105°C)

### SCREW TERMINAL



Screw type capacitors are large capacitors characterized by high capacitance and voltage. Found in industrial power supplies as well as new energy applications.

#### CHARACTERISTICS

Size:  $\Phi 35 - \Phi 100$   
Voltage: 10V – 600V  
Capacitance: 1,000 $\mu$ F - 680,000 $\mu$ F

Life: up to 20,000 hours (85°C)  
up to 5,000 hours (105°C)

## SOLID POLYMER & HYBRID

### RADIAL LEADED



Radial Polymer aluminum capacitors combines high capacitance, low ESR, and excellent frequency stability. Found in consumer electronics and lighting.

#### CHARACTERISTICS

Size:  $\Phi 4 - \Phi 18$   
Voltage: 2.5V – 200V  
Capacitance: 4.7 $\mu$ F – 5,600 $\mu$ F  
ESR: as low as 5m $\Omega$   
Life: up to 10,000 hours (105°C)  
up to 4,000 hours (125°C)

### SURFACE MOUNT



SMD Polymer aluminum capacitors combines high capacitance, low ESR, and excellent frequency stability. Found in consumer electronics and lighting.

#### CHARACTERISTICS

Size:  $\Phi 4 - \Phi 18$   
Voltage: 2.5V – 200V  
Capacitance: 4.7 $\mu$ F – 5,600 $\mu$ F  
ESR: as low as 5m $\Omega$   
Life: up to 23,000 hours (105°C)  
up to 4,000 hours (125°C)

### MLPC



Multi-Layer Polymer Capacitor is a surface mounting capacitor with multiple metal-deposited polymer layers that are continuously laminated together with metal deposition on a polymer film.

#### CHARACTERISTICS

T Dimension: 2.8 – 1.1  
Voltage: 2V – 35V  
Capacitance: 2.2 $\mu$ F – 560 $\mu$ F  
ESR: as low as 3m $\Omega$   
Operating Temp.: -55°C to 105°C  
Life: up to 2,000 hours (105°C)

# PRODUCT TYPES

## FILM

### HIGH POWER DC-LINK



Constructed of metallized polypropylene film, sealed with epoxy in aluminum case or stainless-steel casing. These capacitors are suitable for high capacitance requirement of DC-Link circuits.

#### CHARACTERISTICS

**Stainless Steel**  
Voltage: 450 ~ 3000 Vdc  
Capacitance: 1000 $\mu$ F ~ 20,000 $\mu$ F  
Temp: -40 °C ~ 70 °C

### DC-LINK



Constructed of metallized polypropylene film encapsulated with epoxy resin in a plastic box or cylindrical Al can. These series are suitable for high performance DC filtering applications.

#### CHARACTERISTICS

**Al Can/Plastic Case**  
Voltage: 450 ~ 3,800 Vdc  
Capacitance: ~ 2,200 $\mu$ F  
Temp: -40 °C ~ 125 °C

### AC FILTER



Constructed of metallized polypropylene film encapsulated with epoxy resin with plastic box or enclosed in cylindrical Al can filled with soft resin. These series are designed for PFC, LCL system and AC harmonic filtering.

#### CHARACTERISTICS

**Al Can/Plastic Case**  
Voltage: 160 ~ 850 Vac  
Capacitance: ~600 $\mu$ F  
Temp: -40 °C ~ 105 °C

### ELECTROMAGNETIC INTERFERENCE SUPPRESSION (EMI)



Constructed of metallized polypropylene film encapsulated with self-extinguishing resin in a box of material meeting the requirement of UL94V-0 with class X1 or X2 or Y2 classification. There are certified with UL/cUL, VDE and CQC.

#### CHARACTERISTICS

**Plastic Case (X1/X2/Y2)**  
Voltage: X2 305 Vac  
Voltage: X1/X2 350~760 Vac  
Voltage: Y2 250~350 Vac  
Capacitance: 0.001 $\mu$ F ~ 45 $\mu$ F  
Temp: -40 °C ~110 °C

### SNUBBER



Constructed of metallized polypropylene film with double-sided metallized film encapsulated with epoxy resin in a rectangular plastic case, with lug terminals or tinned copper wire. Widely use in IGBT module protection.

#### CHARACTERISTICS

**Plastic Case/Axial**  
Voltage: 600 ~ 3,000 Vdc  
Capacitance: 0.033 $\mu$ F ~ 5 $\mu$ F  
Temp: -40 °C ~ 105 °C

### DC CAPACITOR FOR PCB



The DC capacitors for PCB are constructed of metallized polypropylene film or polyester film, encapsulated in plastic cases, sealed with epoxy resin. Widely use in PFC, resonant circuit, pulse, blocking, by-passing, coupling or decoupling.

#### CHARACTERISTICS

**Plastic Case**  
Voltage: 100 ~ 3,000 Vdc  
Capacitance: 0.00015 $\mu$ F ~ 30 $\mu$ F  
Temp: -40 °C ~ 125 °C

# OUR MARKETS

Aishi capacitors are found in a wide array of products and industries



## LIGHTING

CFL, SSL (solid state lighting), energy saving lamps, lighting ballasts



## INDUSTRIAL

motor controllers, switchgear and switchboard applications, UPS systems, server power



## NEW ENERGY

solar energy systems, windmills and turbines, geothermal systems, wave generation systems



## AUTOMOTIVE

electronic controls, display systems, audio systems, amplifiers, GPS systems, air bag igniters, security systems



## TELECOM

landline phones, mobile chargers, switchers, adaptors, routers, hubs, LANs, Ethernet hardware



## MEDICAL

monitoring equipment, dialogistic equipment, magnetic imaging equipment, medical pumps, electronic monitoring devices



## HOME APPLICATIONS

televisions, air conditioners, refrigerators, washer and dryers, set top boxes, game consoles, audio/stereo equipment, microwaves



## COMPUTER

mother boards, sound cards, graphic cards, printers, scanners, monitors, hard drives



# MANUFACTURING LOCATIONS

7

## Manufacturing Locations Across China

### Location Advantages

1. Capacitor Manufacturing – Center of China. Optimal logistical location for efficient distribution. Stable labor force.
2. Forming Foil – Low Electricity Cost
3. Etching Foil – Material complemented with textile dyeing industry



**Formed Foil**  
Rongze, Xingjiang

Xingjiang

**Snap In & Industrial**  
Deyang, Sichuan



**Radial Leaded**  
Manyang, Sichuan



**Radial Leaded, SMD, Snap In, Screw, Polymer**  
Yiyang, Hunan

**Film**  
Suzhou

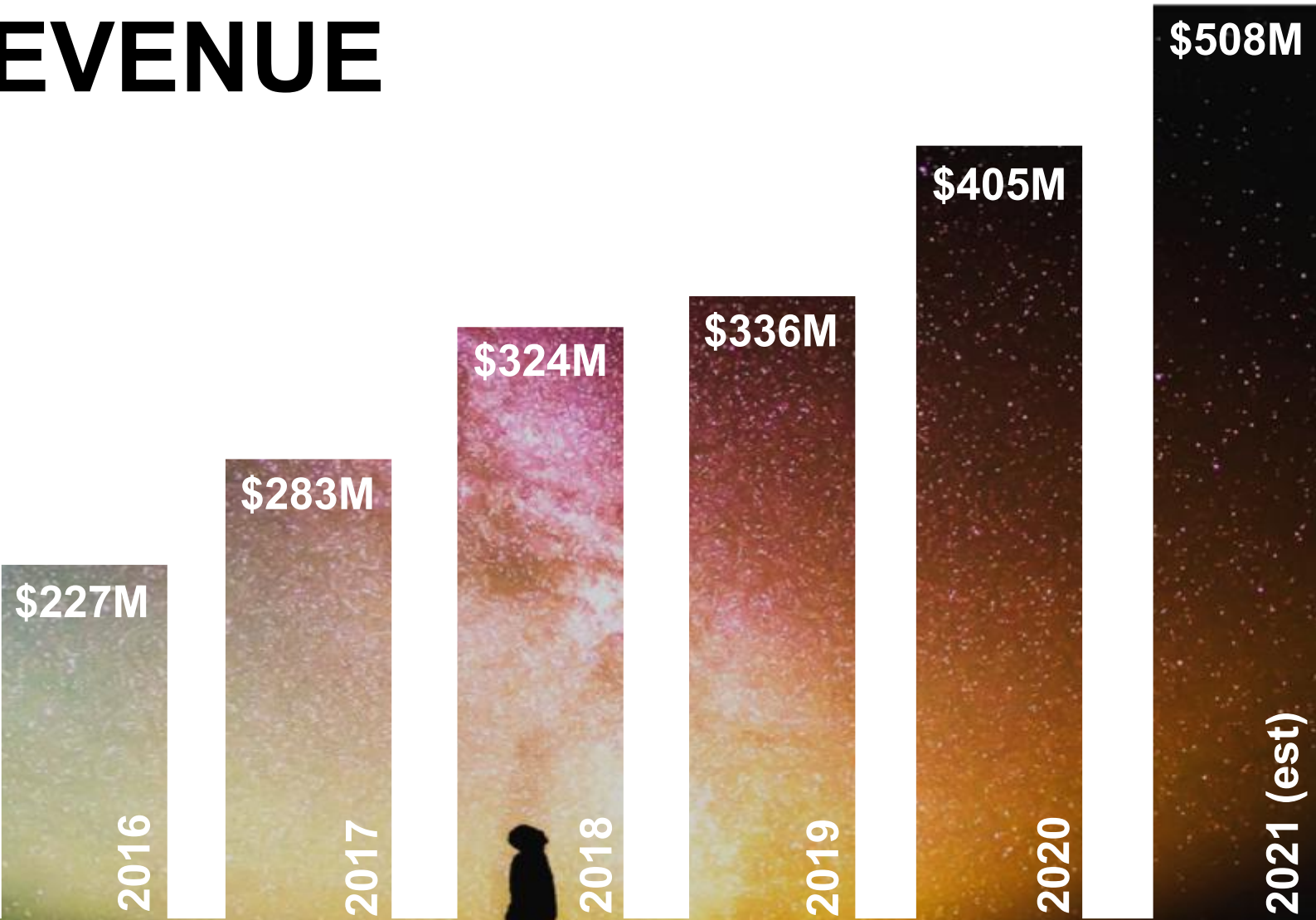
**Etching Foil**  
Nantong, Jiangsu

**Equipment Plant**  
Yiyang, Hunan

# SALES REVENUE

# 16%

Compounded Annual Growth Rate  
From 2016 to 2020



Since 2016, Aihua has a compounded annual growth rate of 16%. Revenues are estimated to be \$508million for 2021.

# OUR OFFICES

Aihua has 25 registered offices throughout the world

CHINA | US | KOREA | TAIWAN | JAPAN | HONG KONG

Seoul, South Korea Houston, TX Minneapolis, MN Walnut, CA Shanghai Beijing Xiamen Guangzhou Shenzhen Hong Kong Suzhou Zhongshan Foshan Hangzhou Taiwan

# 25

Offices worldwide

The Aihua Group, established in 1985, is a technology enterprise group focused on the design, development, manufacturing, and sales of aluminum electrolytic capacitors as well as the manufacturing of aluminum foil and machines. people.

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**AiSHi**  
THINK AHEAD

# SUPPLY CHAIN

Aishi understands the importance of a strong supply chain to ensure the most efficient and flexible service to its customers

# 1-2

Week lead time for most samples

# 3

Week lead time for most parts

# AI

Joint venture with JCC for etching foil as well as Aishi owned forming foil factory in Xinzhang.

Aishi works with top international and domestic suppliers and maintains strong relationships and communication with all its suppliers

# WORLDWIDE MARKET POSITION

Rankings based on capacitor revenues:

# #1

In China based on revenue

# #4

Globally, based on revenue

Based on sales revenue, Aihua ranks #1 in China and #4 overall in the world. Aihua accounts for 8% of the worlds market share

# 8%

Worldwide market share

| SUPPLIER      | RANK | SHARE |
|---------------|------|-------|
| NCC           | 1    | 23%   |
| Nichicon      | 2    | 17%   |
| Rubycon       | 3    | 10%   |
| Aihua (Aishi) | 4    | 8%    |
| Panasonic     | 5    | 6%    |
| Other         |      | 36%   |

SOURCE:

Passive Electronic Components: Paumanok Publications 2019

# AIHUA STRATEGY

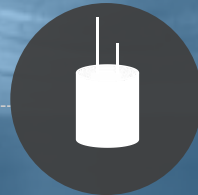
providing a total AiSHi solution



Identify and clearly understand customer needs and requirements



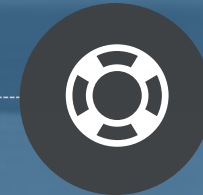
Engage customer collaboration with AiSHi engineers and experts



Develop the right product tailored to customers requirements



Drive efficient production and delivery to optimize supply chain



Provide around the world and around the clock support

# TECHNOLOGY INNOVATION



## ELECTROLYTE TECHNOLOGY

At AiSHi's research lab and facility, a dedicated staff and state of the art equipment combine to develop AiSHi's proprietary electrolyte solutions. This electrolyte is a core component to the company's high performance capacitors.



## SOLID POLYMER CAPACITOR DESIGN & DEVELOPMENT

AiSHi solid polymer capacitors combine very high capacitance, extraordinary low ESR, excellent frequency stability, and a non-ignite benign failure mode to make it a niche fit in space applications for both today and the future.

## AI

## FOIL MANUFACTURING TECHNOLOGY

AiSHi owns technologically advanced processes, machines and equipment for foil etching and foil forming. With a expansive and efficient foil production line, the company is capable of outputting 1,200,000 m<sup>2</sup> of foil monthly.



## PROPRIETARY MACHINE MANUFACTURING

AiSHi manufactures and maintains machines used in the company's production line, contributing to the overall performance and consistency of the products delivered to customers.

# TECHNOLOGY STRENGTHS



## INTERNAL EXPERTS

Japanese and American Experts with 30 years experience in capacitors industry. Additionally, local and Taiwanese Top Engineers with over 20 years experience.



## EXTERNAL NETWORK

Includes China Capacitor Research and Development Center, University of Electronic Science and Technology of China, Central South University, Xian Jiaotong University, China Academy of Sciences



## PATENTED INNOVATION

The Aihua Group owns over 230 registered patents for its capacitors which gives it product line a superior advantage over its competitors.





## **FACILITIES**

total area spans 150,000 sqm and production capacity is over 1.2 billion pieces per month

## **DUST FREE CONTROL**

ISO9 type standards by isolated aisles and an air shower chamber prior to entering production area

# **PRODUCTION INNOVATION AND STRENGTHS**

## **5S MANAGEMENT**

5S methodology employed at all levels of production at Aihua

## **MACHINE MAINTENANCE**

all machines are updated within 5 years;  
maintenance is performed at premise

# QUALITY INNOVATION & STRENGTHS

## INTERNATIONAL QUALITY MANAGEMENT STANDARDS



ISO9001:2015



ISO14001:2015



IEC QC080000:2017



ISO 45001:2018



IATF / TS 16949:2016

## ADVANCED TESTING EQUIPMENT



Shimadzu  
SMX-1000 plus  
CT X-Ray



ZEISS Microscope  
Smart z00m5



Shimadzu  
LC Solution



Shimadzu  
UV-1800



ThermoFisher  
Nicolet IS5



Shimadzu  
EDX-LE  
XRF Tester



Zeiss  
SEM Eva 18

# PRODUCT RELIABILITY

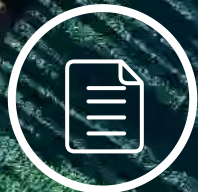
## CAPACITOR TESTING

CNAS and ISO 17025 Certified Lab  
Reliability Standards: IEC60384-4 & AEC Q-200  
Over 30 tests can be performed at the capacitor level such as load life, shelf life, humidity, surge, high G shock, etc.

## APPLICATION TESTING

Many application tests performed on lighting, home applications, computer, etc.

# AIHUA ENVIRONMENT



**ISO14001 Certified**



**IECQC08000 Certified**



**Halogen Free, Rohs, REACH compliance**

Based on our enterprise objective of environmental protection and sustainable development, our production process focuses on energy and resource efficiency, recycling and continuously optimizes the utilization ratio of materials. Aihua has passed the certification of ISO14001 (international environment management system) and makes additional efforts to reduce negative impacts on the environment and improve the overall environment around the world. We realize this importance and efforts shall be ongoing.

# SOCIAL RESPONSIBILITY



The Aihua Group is proud to create value to its employees and the society through consistent efforts to establish and maintain a safe and friendly working environment.

| We Care About Our Employees and the Society |   |
|---|---|
| Training and career path                    | Constant on the job training.<br>Aihua Group annually sends staff to Japan for learning every year.   |
| Stability of living                         | New housing scheme, provides employees with housing.  |
| Good working environment                    | Safe working environment. Green factory environment. Entertainment facilities to allow employees to enjoy their personal life after work hours. |
| Environmental Protection                    | Implementing policies to keep the environment clean   |
| Mother and Care Fund                        | Supports the elderly and expected mothers with financial assistance.  |



# MAJOR CUSTOMERS

## POWER APPLICATIONS



# MAJOR CUSTOMERS

## LIGHTING APPLICATIONS

**AcuityBrands**™

passion for electronics b,a,g,

**CREE** ⇄™

**Dixon**

**FSL**



**ICT**

**INVENTRONICS**



**LUTRON**

**MEGAMAN**®  
Energy Saving Lamps

**NVC** 雷士照明



**Panasonic**

**PHILIPS**

**SHARP**

**TCI** LED  
professional led applications



**TOPSTAR** 通士达

**TOSHIBA**  
Leading Innovation >>>

**TOSPO**

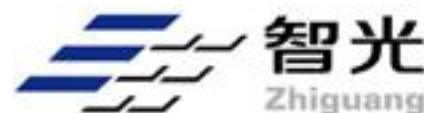
**TRIDONIC**  
enlightening your ideas

**V5** VOSSLOH  
SCHWABE

**Yankon** 阳光照明  
LIGHTING

# MAJOR CUSTOMERS

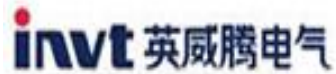
## INDUSTRIAL APPLICATIONS





# MAJOR CUSTOMERS

## AUTOMOTIVE



# MAJOR CUSTOMERS

## CONSUMER ELECTRONICS AND APPLIANCES



# MAJOR CUSTOMERS

## REPRESENTATIVES AND DISTRIBUTORS





THANK YOU.